Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently Amended) A method for inter-working a radio access network (RAN) in an internet protocol (IP) based core network (CN), comprising:

establishing a traffic connection between a first mobile station (MS) and a first base station subsystem for IP (BSS-IP) using a prescribed protocol upon receiving a call connection request message from the first MS, the establishing including transmitting a call connection request message from the first MS through the first BSS-IP to a wireless call agent (WCA), confirming completion of the traffic connection to the first MS and transmitting a response message from the first BSS-IP to the WCA;

interpreting, at the WCA, a directory number (DN) of a second MS as requested by the first MS and establishing a traffic connection between the second MS and a second BSS-IP using a prescribed protocol, the WCA being coupled between the first BSS-IP and the second BSS-IP;

generating a ring-back tone using a prescribed protocol so that the first MS receives the ring-back tone; and

stopping the generation of the ring-back tone using a prescribed protocol if the second MS responds, and establishing a call connection between the first MS and the second MS.

2.   (Original) The method of claim 1, wherein the first MS is a call originating MS, the second MS is a call receiving MS, the first BSS-IP is associated with the first MS, and the second BSS-IP is associated with the second MS.

3.   (Original) The method of claim 1, wherein the prescribed protocols comprise matching signal protocols for the signal connection transfer and the traffic connection control protocols.

4.   (Original) The method of claim 3, wherein the matching signal protocols comprise at least one of M3UA (MTP3 User Adaptation), SCTP (Stream Control Transmission Protocol), IP, MGCP (Media Gateway Control Protocol), IOS Application, SCCP (Signaling Connection Control Protocol), UDP (User Datagram Protocol), LLC (Logical Link Control), and Physical, and wherein the traffic connection control protocols include RTP (Real Time Protocol)/RTCP (Real Time Control Protocol), UDP, IP, Voice Encoded Data, LLC, MAC, and Physical.

5.   (Currently Amended) The method of claim 1, wherein ~~the~~ establishing the traffic

connection between the first MS and the first BSS-IP ~~comprises~~further comprises:

~~transmitting a call connection request message from the first MS through the first~~

~~BSS-IP to a wireless call agent (WCA);~~

interpreting the DN of the second MS as requested by the first MS at the WCA

after the transmitting the call connection request message from the first MS through the first

BSS-IP to the WCA;

transmitting a connection request message from the WCA to the first BSS-IP

using the MGCP if the DN is determined to be valid;

assigning traffic connection ports to the IP network of the first MS and

transmitting a response message from the first BSS-IP to the WCA; and

transmitting a resource assignment message from the WCA to the first BSS-IP

using the UDP port number; and before the confirming the completion of the traffic connection

to the first MS and the transmitting a the response message from the first BSS-IP to the WCA.

6.   (Currently Amended) The method of claim 1, wherein establishing the traffic

connection between the second MS and the second BSS-IP comprises:

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transmitting a paging message from ~~a wireless call agent (WCA)~~the WCA to the

second MS through the second BSS-IP by interpreting the DN of the second MS as requested by

the first MS;

responding to the WCA by transmitting an IOS message from the second MS to

the WCA through the second BSS-IP upon recognizing the paging message;

assigning UDP ports to the second BSS-IP for the traffic connection with the first

BSS-IP, and requesting a connection with an available connection port of an IP network to be

connected to the second BSS-IP, by transmitting an MGCP message;

assigning the traffic connection ports of the second MS and transmitting a

response message from the second BSS-IP to the WCA;

transmitting a resource assignment message from the WCA to the second BSS-IP

using the UDP port number; and

confirming the completion of the traffic connection to the second MS and

transmitting a response message from the WCA.

7.   (Original) The method of claim 1, wherein generating the ring-back tone

comprises:

transmitting to a tone source an IP network traffic connection request message

together with an IP traffic UDP port number of the first MS, a user traffic's voice message

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transcoding method, and protocol information for end-to-end real-time message processing, using MGCP, so that the first MS may receive the ring-back tone;

modifying a connection traffic path of the first MS to the currently managed ring-back tone traffic channel;

connecting the IP traffic port of the first MS to the ring-back tone traffic channel and transmitting a response message to the WCA;

transmitting to the first BSS-IP a modification connection request message together with the user traffic's voice message transcoding method and the protocol information for the end-to-end real-time message processing, using the previously assigned user ports;

modifying the connection traffic path of the first MS to a ring-back tone traffic channel;

connecting the IP traffic port of the first MS to the ring-back tone traffic channel and transmitting a response message to the WCA;

transmitting a notification request message to the tone source using the MGCP; and

generating the ring-back tone through the traffic channel of the currently connected MS by referring to the notification request message and then transmitting a response message to the WCA.

8.   (Currently Amended)   The method of claim 1, wherein establishing the call connection between the first MS and the second MS comprises:

transmitting a connection message from the second MS to a~~ ~~the wireless call agent (WCA) through the second BSS-IP using an IOS message;

transmitting a notification request message to a tone source using MGCP;

stopping the generation of the ring-back tone which has been transmitted and transmitting a response message to the WCA;

transmitting a connection delete message to the tone source;

disconnecting a tone connection path on the IP network and then transmitting a response message to the WCA;

transmitting a modification connection request message to the first BSS-IP together with a user traffic UDP port number of the second BSS-IP, voice message transcoding method on the user traffic and the protocol information for end-to-end real-time message processing;

connecting the IP network traffic channel of the currently managed first MS to the user traffic channel of the second BSS-IP and transmitting a response message to the WCA; and

transmitting a connection message to the first MS to establish the call connection between the first MS and the second MS.

9.　　(Currently Amended) A system for inter-working a Radio Access Network (RAN) in an IP based Core Network (CN) comprising:

a Wireless Call Agent (WCA) to conduct call connections and routing functions by controlling all gateways accommodated in the IP based CN;

a̶ at least one Base Station Subsystem for Internet Protocol (BSS-IP) configured to conduct gateway functions by controlling the RAN and communicating with the WCA, the WCA being coupled between at least two BSS-IP;

a Trunk Gateway (TG) configured to conduct voice traffic matching functions between the IP based CN and a wire-based network, and to provide service functions unique to voice communication;

a Signaling Gateway (SG) configured to provide No. 7 signal connection matching functions between the IP based CN and the wire-based network;

a Home Location Register (HLR) configured to manage mobile communication subscribers' locations within a mobile communication network, and to perform mobility control; and

a Packet Data Serving Node (PDSN) configured to conduct inter-working of the IP network and the mobile communication CN so as to provide packet data services for the mobile communication subscribers subscribers.

wherein the WCA receives a call connection request message from a first MS through a first BSS-IP of the at least one BSS-IP, receives a response message from the first BSS-IP after confirmation of completion of a traffic connection to the first MS, transmits a paging message to the second MS through a second BSS-IP of the at least one BSS-IP by interpreting a directory number (DN) of the second MS as requested by the first MS, and transmits a response message after confirmation of the completion of a traffic connection to the second MS.

10.   (Original) The system of claim 9, wherein the IP based CN may be routed by IP, based upon an Asynchronous Transfer Mode (ATM) connection, or a high-speed packet network.

11.   (Original) The system of claim 9, wherein matching signal protocol stacks are provided between the BSS-IP and the WCA for the signal connection transfer, and traffic connection control protocol stacks are provided between the BSS-IP and the TG.

12.   (Original) The system of claim 11, wherein the matching signal protocol stack is configured to match protocols below an MTP3 layer with M3UA, SCTP, and IP, add the MGCP

to control the BSS-IP's status and connection, and include an IOS Application, SCCP, UDP, LLC, MAC, and Physical layer.

13.   (Original)   The system of claim 11, wherein the traffic connection control protocol stack adds the RTP/RTCP, UDP, and IP for the voice traffic transfer, and includes the Voice Encoded Data, LLC, MAC, and Physical layer.

14.   (Currently Amended) A system for inter-working a Radio Access Network (RAN) in the IP based Core Network (CN), comprising protocols for establishing a unified IP based communication network by matching the RAN and the CN, and for signal connection and traffic transmission connection required for the matching of the two networks, wherein the protocols comprise:

an MTP-3 User Adaptation layer (M3UA) to match an MT3 protocol, which transfers messages on a wire-based No. 7 signal network, and the IP network;

a Stream Control Transmission Protocol (SCTP) to reliably transfer signal messages on the IP based network;

a Logical Link Control (LLC) to control a link level on the Internet;

a Media Gateway Control Protocol (MGCP) to provide a gateway control function required for physical matching of a PSTN and the IP network;

a User Datagram Protocol (UDP) for transferring non-connection type higher

level application messages on the IP network;

the Internet Protocol (IP) used as a message routing basis on the Internet; and

a Media Access Control (MAC) to control the physical link level on the

~~Internet~~Internet,

wherein the MGCP is additionally used for the status control of the BSS-IP and

the connection control of a Base Station Subsystem for Internet Protocol (BSS-IP) and the

connection control of the traffic from the BSS-IP to the IP based network.

15.   (Canceled)

16.   (Original) The system of claim 14, wherein the protocols for conducting the

signal connection further comprise:

an IOS Application to perform call connections and disconnections for mobile

communication subscribers; and

an Signaling Connection Control Protocol (SCCP) to provide reliable signal data

transfer function with respect to the higher-level application signal protocols.

17.   (Original) The system of claim 14, wherein the protocols for conducting the traffic transmission connection further comprise an RTP/RTCP to perform control and transfer functions required for transferring real-time messages on the IP based network.

18.   (Original) The system of claim 17, wherein the RTP/RTCP is conducted so as to facilitate the traffic transfer and is executed based upon the UDP and IP.

19.   (Previously Presented) A system for inter-working a Radio Access Network (RAN) in the IP based Core Network (CN), comprising:

first and second mobile stations (MS);

first and second base station subsystems for Internet protocol (BSS-IP) coupled to the first and second MS, respectively; and

a wireless call agent (WCA) coupled between the first and second BSS-IP,

wherein the first MS is configured to establish a traffic connection between the first MS and the first BSS-IP using a prescribed protocol, wherein the second BSS-IP is configured to establish a traffic connection using a prescribed protocol between the second MS and a second BSS-IP based on a directory number (DN) of the second MS as requested by the first MS, and wherein a call connection is established between the first MS and the second MS

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using the WCA in accordance with the established traffic connections between each MS and

BSS-IP.

20.   (Original) The system of claim 19, wherein establishing the traffic connection

between the first MS and the first BSS-IP comprises:

transmitting a call connection request message from the first MS through the first

BSS-IP to the WCA;

interpreting the DN of the second MS as requested by the first MS;

transmitting a connection request message from the WCA to the first BSS-IP

using a MGCP if the DN is determined to be valid;

assigning traffic connection ports to the IP network of the first MS and

transmitting a response message from the first BSS-IP to the WCA;

transmitting a resource assignment message from the WCA to the first BSS-IP

using the UDP port number; and

confirming the completion of the traffic connection to the first MS and

transmitting a response message from the first BSS-IP to the WCA.

21.   (Original) The method of claim 19, wherein establishing the traffic connection

between the second MS and the second BSS-IP comprises:

transmitting a paging message from the WCA to the second MS through the second BSS-IP by interpreting the DN of the second MS as requested by the first MS;

responding to the WCA by transmitting an IOS message from the second MS to the WCA through the second BSS-IP upon recognizing the paging message;

assigning UDP ports to the second BSS-IP for the traffic connection with the first BSS-IP, and requesting a connection with an available connection port of an IP network to be connected to the second BSS-IP, by transmitting an MGCP message;

assigning the traffic connection ports of the second MS and transmitting a response message from the second BSS-IP to the WCA;

transmitting a resource assignment message from the WCA to the second BSS-IP using the UDP port number; and

confirming the completion of the traffic connection to the second MS and transmitting a response message from the WCA.

22.   (Previously Presented) The method of claim 19, wherein establishing the call connection between the first MS and the second MS comprises:

transmitting a connection message from the second MS to the WCA through the second BSS-IP using an IOS message;

transmitting a modification connection request message to the first BSS-IP

together with a user traffic UDP port number of the second BSS-IP, voice message transcoding

method on the user traffic and the protocol information for end-to-end real-time message

processing;

connecting an IP network traffic channel of the first MS to the user traffic channel

of the second BSS-IP and transmitting a response message to the WCA; and

transmitting a connection message to the first MS to establish the call connection between the

first MS and the second MS.